

Evaluation of the digitisation strategies of Slovenian higher education institutions

Final evaluation report

This report offers an evaluation of five information, communication and technology (ICT) projects implemented by Slovenia's four public higher education institutions (HEIs), and the University of Ljubljana's Central Technical Library (CTK), as part of the national Recovery and Resilience Plan (RRP)-funded project "C2K7 – *Digital transformation of the public sector and public administration*". It was prepared by the OECD Secretariat for the Slovenian Ministry of Education, Science and Youth.

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1. Introduction

This report offers an evaluation of five information, communication and technology (ICT) projects implemented by Slovenia's four public higher education institutions (HEIs) as part of the project "C2K7 – Digital transformation of the public sector and public administration". The C2K7 project was implemented by the Slovenian Ministry of Education, Science and Youth (previously the Ministry of Higher Education, Science and Innovation and, hereafter, the Ministry) as part of the smart, sustainable, and inclusive growth pillar of Slovenia's Recovery and Resilience Plan (RRP) and – under the action line "digitalisation of education and science" – benefitted from an investment of almost EUR 12.5 million (Republic of Slovenia, 2024^[1]). Through its RRP, Slovenia implemented funds made available by the European Union (EU) in the wake of the COVID-19 pandemic.

A key objective of the evaluation is to assess how the ICT investments made by beneficiary institutions fit within the broader digitalisation strategies of Slovenia's public HEIs and, thus, contribute to the shared objectives for the digitalisation of Slovenian higher education overall. Additionally, the evaluation seeks to identify areas where further policy efforts might be needed to support the digital transformation of Slovenian higher education, and how these policy efforts might be supported within Slovenia's wider policy framework, including: a) the "Blueprint to Reform Higher Education in Slovenia for a Green and Resilient Transition to Society 5.0" and b) the 2026-30 strategy of the Academic and Research Network of Slovenia (ARNES), Slovenia's national research and education network (NREN).

The report examines five key questions:

- 1) **Strategic relevance and focus areas:** To what extent were the ICT investments relevant to the digitalisation needs of Slovenia's higher education system and individual institutions? What have been the areas of ICT in which the beneficiary institutions have invested as part of the projects?
- 2) **Effects and impact on the ongoing digitalisation and quality of higher education:** To what extent have the ICT investments been successful and contributed to the ongoing digitalisation of higher education and improved the overall quality of higher education provision, specifically the quality of teaching, organisational efficiency, and the quality of institutional management?
- 3) **Efficiency and operational implementation challenges:** What are some of the main challenges faced by beneficiary institutions when implementing the project (e.g. procurement and interoperability challenges, securing required human resources (HR) and identifying training needs, system and network maintenance)?
- 4) **Sustainability and transferability:** How do beneficiary institutions plan to ensure the longer-term maintenance and/or upgrading of digital infrastructure and skills beyond 2025? What do institutions need to ensure the longevity of projects?
- 5) **Key lessons for policy:** How might public policy support the higher education sector to engage in the further digital transformation of Slovenian higher education in the short to medium term? What should be the balance between system coordination and institutional autonomy?

Following this introduction, the remainder of the report is structured as follows:

- Section 2 outlines the context and objectives of the evaluation and the evaluation methodology;
- Section 3 describes the strategic relevance of the ICT investments for beneficiary institutions, as well as the different areas invested in;
- Section 4 discusses the main effects and impacts of the ICT investments reported by beneficiary institutions, as well as challenges encountered during implementation;
- Section 5 discusses institutional strategies to ensure the sustainability of ICT investments, and how public policy might support future ICT investments in Slovenian higher education.

2. Project context, objectives and evaluation method

This section describes the context and objectives underpinning the ICT projects, including an overview of the budget and number of project activities per institution, and their connection to the achievement of wider strategic objectives and initiatives in Slovenia. It then outlines the evaluation methodology.

2.1 Context and objectives of the ICT projects

On 29 June 2022, all four public HEIs in Slovenia and the Central Technical Library at the University of Ljubljana received a Call for Applications from the Ministry. In this document, the Ministry invited institutions to submit an application to receive RRF funding for ICT investments. In the Call, the purpose of the ICT project was described as follows (Government of Slovenia, 2022^[2]):

*The purpose of the project is to provide public higher education institutions and public higher education libraries with equipment and services of external experts in support of the **digitalisation of the higher education study process** and the **digitalisation of processes connected with the pedagogical and administrative management** part of the provision of higher education study activities [machine translated from Slovenian].*

In total, the Ministry distributed almost EUR 12.5 million of Recovery and Resilience Facility (RRF) funding to the five beneficiary institutions (see Table 1). The investments were intended to provide a range of results, including making improvements to institution's basic digital infrastructure; developing applications and e-solutions that support work processes and provide data for student analytics; and ensuring high-speed connectivity, data storage and competence building to provide open data and open science across research organisations.

The project required institutions to carry out three major types of activities:

- 1) **Preparation of technical specifications**, based on detailed internal analyses, for the purchase of hardware and software and to support the renewal of existing ICT systems;
- 2) **Implementation of public procurement processes** to purchase new hardware and software, and support the renewal of existing administrative and pedagogical systems; and
- 3) **Provision of user support** to effectively use newly purchased or upgraded IT systems.

The following costs were eligible: the purchase of equipment, external expert services, development and implementation costs, costs for the operation of document management systems, costs for renewing the information system supporting administrative processes for comprehensive digital operations, VAT costs.

Table 1. Overview of the number of projects and budget allocated per Slovenian HEI

Beneficiary institution	Project title	Number of project activities	Budget
University of Ljubljana (UL)	Digital UL Equipment Purchase	6	EUR 7 478 463.29
University of Maribor (UM)	RRP ICT Equipment 2022	5	EUR 2 780 748.24
University of Primorska (UP)	Equipment Purchase for Study and Administrative UP	8	EUR 2 046 254.36
Faculty of Information Studies (FIŠ) in Novo Mesto	Purchase of ICT for Study and Administrative Support	3	EUR 56 157.80
University of Ljubljana's Central Technical Library (CTK)	Purchase of ICT Equipment	3	EUR 122 000.00
Total	5	25	EUR 12 483 623.69

Note: Based on the available information, it was not possible to systematically break down the budget spent per institution on each individual project activity.

Source: Based on beneficiary institutions' final project implementation reports, shared with the OECD team by the Slovenian Ministry.

2.2 Contribution to national priorities and initiatives in Slovenian higher education

Supporting the implementation of national strategic objectives

The ICT investments made as part of the projects were intended to support the development and implementation of a wider, system-level “Blueprint to Reform Higher Education in Slovenia for a Green and Resilient Transition to Society 5.0”. At the time of writing, the Ministry is in the process of developing this Blueprint and allocated EUR 2.02 million of RRF funding for this. The Blueprint will seek to underpin a systemic reform of higher education in Slovenia in line with six strategic objectives (MVZI, 2022^[3]). Three Blueprint objectives will directly benefit from the RRP ICT project:

- **Strategic objective 3 (Raising awareness, interest and competencies related to digital technologies, encouraging their responsible use and entrepreneurial activities):** Slovenia’s 2022 digitalisation strategy includes ambitious goals to become one of the most digitalised nations in the EU (European Commission, 2023^[4]; European Commission, 2023^[5]). To achieve this, it is crucial that all students and educators in higher education have access to up-to-date digital technologies that can enable them to develop their digital competencies and awareness.
- **Strategic objective 5 (Reducing dropout and non-completion rates, particularly in science, technology, engineering and mathematics):** Another objective for Slovenia is to reduce the levels of student drop-out and non-completion in tertiary education.¹ International evidence finds that, when used appropriately, digitally enabled study environments offer great potential for more flexible and student-centred learning and teaching, thus creating opportunities for enhanced student retention and completion (Staring et al., 2022^[6]; OECD, 2023^[7]).
- **Strategic objective 6 (Raising adult participation rates in upskilling and reskilling):** A third objective that the ICT investments in Slovenian higher education can support is raising adult participation rates in upskilling and reskilling, to ensure the workforce remains adaptable and competitive in the face of evolving labour market demands.² For adults, who often have to combine studying with work, family or caring responsibilities, digitally enhanced learning can be a key enabler for them to participate in higher-level learning (e.g. supporting self-paced study with online learning materials or fully online or hybrid deliver of study programmes).

A continued focus on ICT investment as part of institutional performance agreements

In addition to supporting the implementation of the strategic objectives outlined above, the ICT investments can provide a basis on which further national investments can be targeted as part of Slovenia’s new system of institutional performance agreements with HEIs – which seeks to address some challenges observed with the existing system (see Box 1). In interviews with the OECD team, the Ministry explained that it will start negotiating the strategic objectives included in these performance agreements from the second half of 2026, and to have the agreements in place by 2028.

At this stage, it is envisaged that the new funding model will contain three main pillars: a core funding pillar, a development pillar, and an investment pillar. The latter would, for the first time, give HEIs a dedicated budget line to allocate resources to infrastructure upgrades and maintenance (incl. digital infrastructure).

¹ By the end of the theoretical duration of study, 38% of students complete their education within the theoretical duration compared to an OECD average of 39% in countries with available data (OECD, 2022^[12]). Allowing an additional three years beyond the theoretical duration, Slovenia’s completion rate rises to only 56%, which stands well below an international average of 68% in countries with available data (OECD, 2022^[12]).

² Lifelong learning efforts, including meeting the target of bringing adult participation in education and training to 60% annually by 2030 (European Commission, 2023^[4]), are critical. These initiatives aim to maintain workforce participation rates at 78% by 2030, while addressing skills mismatches (European Commission, 2023^[4]).

Box 1. Slovenia's existing system of institutional performance agreements with HEIs

Following recommendations prepared by an expert group, Slovenia introduced a “development pillar” in its funding system for public HEIs in 2017. As part of this pillar, HEIs conclude four-year performance agreements with the government, to which a maximum of 3% of basic funding for study activities is attached. To date, two rounds of performance agreements have been concluded (in 2017-20 and 2021-24), and the third round will conclude in 2028.

An evaluation of the existing system has found that the methodology for calculating the funding of HEIs is too complex, and that the development pillar insufficiently incentivises HEIs to be dynamic and respond to the needs of society. The first reason is that there is no explicit requirement for HEIs related to their study programme offer and the needs of the economy and society; a second reason is that the development pillar only constitutes a small share of the total funding HEIs receive. In future, the government wants to use the development pillar to encourage HEIs to focus more strongly on employability/labour market outcomes. A third, and new, investment pillar would give HEIs a dedicated budget line to make investments in their (digital) infrastructure.

Source: Based on Republic of Slovenia (2021^[6]), *Izhodišča za novo ureditev financiranja visokošolske študijske* [Starting points for a new arrangement for financing higher education study activities], https://www.gov.si/assets/ministrstva/MIZS/Dokumenti/Visoko-solstvo/Financiranje/Izhodisca2021_sprejeta_VRS.pdf.

Informing the future role of ARNES in supporting the digitalisation of higher education

Finally, the experience of beneficiary institutions with the purchase, upgrading, maintenance and provision of user support for the effective use of ICT equipment as part of the C2K7 project can inform the future planning of ICT investment in Slovenian higher education, including the role of the Academic and Research Network of Slovenia (ARNES). ARNES is Slovenia's National Research and Education Network (NREN)³ and was established in 1992 as a public, non-profit organisation. It is funded by the ministries responsible for higher education, education, digital transformation, and information security, has around 120 employees, and benefits from a regular annual budget of around EUR 120 million.

The organisation currently operates in three main areas: running Slovenia's critical internet infrastructure, providing ICT services and support to schools and cultural institutions, and running the digital backbone for the e-research infrastructure of HEIs and research institutions (ARNES, n.d.^[7]). For primary and secondary schools, ARNES offers a wide range of services, including:

- **Computing and storage:** ARNES offers computing and data storage facilities for all schools;
- **Software, licensing and multimedia services:** All schools use the same email service, Central Content Management System (WordPress) and Central Learning Management System (Moodle), hosted and maintained by ARNES. Through ARNES, schools can also use web conferencing (Zoom with AAI access), recording and event streaming services;
- **Technical support:** A helpdesk offers 24/7 support to schools experiencing technical or connectivity issues;
- **Procurement:** Schools can contact ARNES for support and advice to purchase ICT equipment;
- **Training and peer learning:** ARNES offers training to schools on the effective use of ICT.

³ An NREN (National Research and Education Network) provides high-speed, secure connectivity and digital services to universities, research institutions, and educational organisations. It connects these communities nationally and internationally, enabling collaboration, data sharing, and access to advanced research infrastructure.

ARNES' role in supporting HEIs with their ICT infrastructure for education and administrative processes is currently much more limited than in the primary and secondary school sectors. While the centralised services such as Moodle or computing and storage facilities are technically open to institutions operating at all levels of education, there has so far been only limited interest and take-up of these services by HEIs. The only exception is the University of Maribor, which uses ARNES' Moodle system. In the future, ARNES and the government are keen to explore how the organisation could play a stronger role in managing and supporting the development of HEIs' digital infrastructure and competencies (see Box 2).

Box 2. Possible strategic directions ARNES support for higher education in 2026-30

In addition to continuing to offer the backbone digital connectivity for HEIs, in interviews with the OECD team, ARNES staff explained they were reflecting on how they might play a stronger role in supporting the digital transformation of higher education. The following strategic questions were mentioned:

1. **National digital space:** How might the organisation support greater coordination and interoperability among the ICT tools and processes used by individual HEIs? For example, through infrastructure hosting and colocation, use of the same digital platforms and multimedia services (e.g. Moodle).
2. **Knowledge infrastructure:** What role could ARNES play in supporting HEIs to make better use of ICT equipment (e.g. training and competence development, user experience optimisation, running communities of practice)?
3. **Security and digital sovereignty:** How can ARNES support HEIs to ensure secure access and trusted governance of data and infrastructure (e.g. centralised e-identity, authentication and authorisation infrastructure, checking regulatory compliance)?

Source: Based on ARNES presentation of strategic directions for 2026-30 to the OECD team at an online meeting on 1 July 2026.

2.3 Evaluation methodology

The OECD team's evaluation of the five ICT projects was carried out between April and August 2026, thereby fulfilling the EU's requirement for RRF investments to be evaluated at their endpoint. The results presented in this report are based on a combination of two main types of data-collection approaches:

- **Desk research:** The OECD team has carried out an in-depth analysis of available documentation on the activities and outputs produced by each investment project. This includes both publicly available information on the project websites, as well as application documents, mid-term and final project implementation reports, shared with the OECD team by the Ministry.
- **Online interviews and fact-finding mission:** On 6-7 July 2026, the OECD team travelled to Slovenia to conduct interviews with institutional leadership, project coordinators and activity leaders, teaching and (administrative) support staff, and students from the University of Ljubljana, the University of Maribor and the Central Technical Library of the University of Ljubljana. During the mission, the OECD team also met with ARNES. Prior to travelling to Slovenia, the OECD team also conducted online meetings with the University of Primorska and ARNES.

In the original Terms of Reference for this evaluation, a short online survey of project coordinators was envisaged as a third and more structured way of collecting feedback from beneficiary institutions. However, given the small number of projects under evaluation (i.e. five), the OECD team and Ministry decided that this activity would add little value. As a result, the findings presented in this report are primarily qualitative in nature, drawing on data and information collected through (online) interviews and desk research.

3. Strategic relevance and focus areas of ICT projects

This section starts by examining the strategic relevance and alignment of the ICT investments with ongoing reforms and priorities in the beneficiary institutions. It then offers a comparative analysis of the major types of investments made by institutions.

3.1 What is the relevance and alignment of ICT investments to institutional strategies?

A key finding of the evaluation is that, for all beneficiary institutions, the financial support received through the C2K7 project was crucial to support the implementation of ongoing digitalisation projects, as well as much-needed upgrades to institutions' core digital infrastructure. For all institutions, 2022 was the first time they received a dedicated pot of money to invest in ICT equipment because, as noted, Slovenia's current funding model for higher education does not include a dedicated budget allocation for such investments. As a result, many institutions' digital infrastructure was out of date and ill-suited to supporting online or hybrid education or ways of working (which had become the norm since the COVID-19 pandemic). Finally, stakeholders reported that the areas in which the Ministry's call for proposals allowed institutions to invest in were closely aligned with their strategic priorities, needs and already ongoing initiatives (the broad categories of ICT invested in by institutions is discussed in section 3.2).

The sections below offer a brief description of the strategic relevance and alignment of the ICT investments with the digitalisation strategy of each beneficiary institution.

Accelerating the development of the University of Ljubljana's digitalisation strategy

At the University of Ljubljana, the "Digital UL Equipment Purchase" project (2022-25) allowed the university to build on several digitalisation projects already completed prior to 2022. In 2017-18, through the "ICT in Pedagogical Study Programmes" project, the University of Ljubljana started developing expertise in the use of digital technology for teaching and learning by offering training to higher education students as well as future primary and secondary students on the didactic use of ICT (University of Ljubljana, 2018^[8]). As part of the "Digital UL – Innovative Use of ICT for Excellence" project (2017-20), the university created a Centre for Innovative Didactical Approaches using ICT (Digital UL). Since 2020, Digital UL has been offering didactic ICT support, training and guidance to teaching staff (University of Ljubljana, 2020^[9]).

In interviews with the OECD team, representatives from the University of Ljubljana also explained that the ICT investments provided the enabling conditions for two other digitalisation projects running in parallel. The university therefore closely co-ordinated all these projects. The first is the "Multipliers Project" (2021-24). Through this project, the institution supported 338 pilot course-renewal activities involving various ICT solutions, notably using equipment purchased through the Digital UL project. The second is the ULTRA project,⁴ which consisted of 11 pilot projects. One of these, "Digital Competencies of Teachers and Students", sought to support the effective use of digital technologies by teaching staff and students, notably using ICT tools purchased through the RRF-funded ICT project (University of Ljubljana, 2025^[10]).

Finally, in interviews with the OECD team, representatives from the University of Ljubljana explained that the RRP-funded ICT equipment project, along with the other digitalisation projects cited above, pushed the institution to develop an institution-wide "Digitalisation Strategy" (*Digitalna Strategija*) (see Box 3). In doing so, the University of Ljubljana fully embraces digital teaching and learning as a strategic direction for the future. It is also the only HEI in Slovenia that has a specific digitalisation strategy.

⁴ The University of Ljubljana's ULTRA project underwent a mid-term evaluation by the OECD team in 2024. The ULTRA project benefited from around EUR 24 million of RRF funding to support the updating of professional study programmes to align them with the needs of the green and digital transitions, and to support upskilling and reskilling.

Box 3. University of Ljubljana's Digitalisation Strategy (2024-27)

In 2024, the University of Ljubljana published its first "Digitalisation Strategy" (*Digitalna Strategija*), which supports the implementation of the overarching University of Ljubljana Strategy (2024-27). In addition to four common objectives, the strategy lists specific objectives for the digital transformation of the institution in three main areas of activity: education, research and management. The document also contains a list of 22 specific activities to achieve these objectives.

Several of these activities directly refer to ICT investments, some of which were directly supported through the "Digital UL Equipment Purchase" project. Three examples are listed below:

- **Activity 3:** Development of online resources for independent learning of digital tools;
- **Activity 4:** Introduction of an integrated study environment with interactive content and practical examples, and a single access application; and
- **Activity 13:** Upgrade of information systems with new functionalities and greater automation and connectivity with other systems.

Source: Adapted from University of Ljubljana (2024^[11]), *Digitalna strategija UL* [Digitalisation strategy UL], <https://www.uni-lj.si/en/university/about-us/strategies>.

Financial support for much-needed ICT upgrades at the University of Maribor

The University of Maribor does not have a specific digitalisation strategy. In interviews with the OECD team, university leadership explained that the institution embraces a place-based approach to teaching and learning. Nevertheless, one of the ten strategic priorities included in the university's "Strategic Vision for 2021-30" does focus on IT Support. This priority is described as follows:

*Like many other organisations and especially educational institutions, the University of Maribor is following a path of digital transformation. This transformation poses important strategic and operational challenges to organisations. By means of digital optimisation, the university will increase its efficiency and improve the user experience at all levels, from employees to students. Digital operation introduces new demands and requires constant expansion of digital capacities. The increasing requirements also significantly impact the way the IT support services operate, namely the issue of their sufficient capacity. Timely, accessible, adequate and transparently presented information is essential for efficient decision making. Therefore, the **focus is on efficient, secure, reliable and comprehensive information support**. Equally important is the **provision of robust and scalable infrastructure**, which enables a smooth implementation of research and study activities (University of Maribor, 2021, p. 28^[12]).*

As such, the University of Maribor already had a very clear vision on the types of ICT equipment it wanted to invest in before the Ministry's Call for Applications was sent out in June 2022. In its application document, the University of Maribor explains that many IT systems were nearly 15 years old, creating security risks and user experience issues (e.g. servers going down due to insufficient operational and data storage capacity). There was also significant duplication in the types of IT systems, licenses and software used by different faculties and individual teaching staff. What was missing to support investments in these different IT systems was funding. The C2K7 project, therefore, provided the much-needed financial resources to make these upgrades. In its application document, the University of Maribor states that the resources made available by the Ministry acted as "the trigger for preparing the investment plan [...] to purchase equipment supporting digitalisation of the higher-education study and administrative processes" [machine translated from Slovenian] (University of Maribor, 2022^[13]).

Strengthening basic infrastructure and flexible learning at the University of Primorska

Like the University of Maribor, the University of Primorska does not have a specific digitalisation strategy. Instead, the university has a “Strategy for Integrating Flexible and Inclusive Methods and Forms of Learning and Teaching into the Study Process at the University of Primorska for the Period 2026–2030” (University of Primorska, 2026^[14]). In the first version of this strategy, covering the 2023-26 period, the university explicitly refers to the C2K7 project as a key project to support the achievement of its strategic objectives:

Through projects such as “Equipment Purchase for Study and Administrative UP” and “Green, Digital, and Inclusive UP (GDI UP)”, as well as “REACT-EU: Information and Communication Technology for Higher Education Institutions Offering Pedagogical Study Programmes”, the University of Primorska will update its information structure by 2025 and enhance its hardware, software, and database access (University of Primorska, 2023, p. 8^[15]).

In consultations with the OECD team, representatives from the University of Primorska explained that there was general awareness among institutional leadership, teaching and administrative support staff that the institution had “very weak ICT equipment, representing a major operational risk” [machine translated from Slovenian] (University of Primorska, 2022^[16]). In 2017, there had also been a fire in one of the university’s buildings (i.e. Livade 1.0 building), but there had always been a lack of earmarked funding to support the much-needed investments to the university’s IT systems and equipment.

Supporting the implementation of the Strategic Plan 2021-2025 at the Faculty of Information Studies (FIŠ) in Novo Mesto

At the Faculty of Information Studies (FIŠ) in Novo Mesto, the ICT investments were directly linked to two objectives included in the faculty’s Strategic Plan for 2021-25 (FIŠ, 2021^[17]). Specifically, FIŠ has sought to use the ICT investments to contribute to achieving “Excellence in Study” (Strategic Objective 2) as well as “Operational Excellence” (Strategic Objective 3). In its application document, FIŠ notes that – since its establishment in 2008 – several information systems have been introduced to support teaching and administrative-management processes (FIŠ, 2022^[18]). While several of these were upgraded over the years, the faculty has not yet achieved fully digitalised teaching and administrative processes. By replacing worn-out hardware and upgrading existing information systems, FIŠ wanted to enable greater automation of work tasks and the digitalisation of processes connected with the teaching and administrative-management aspects of higher education.

Ensuring the Central Technical Library can continue delivering its mission

For the Central Technical Library (CTK) of the University of Ljubljana, the C2K7 project was the first major financial investment in its digital infrastructure in more than 10 years. In its project application document (CTK, 2022^[19]), CTK notes that the library had received EUR 161 120 of Ministry funding over the past 10 years. The EUR 122 000 of additional RRF funding received in 2022 therefore constituted a timely top-up to replace and modernise highly outdated ICT equipment and operational processes.

CTK described the state of its ICT equipment and operational processes as follows (CTK, 2022^[19]): the average age of computers used by employees and library users was between 5 and 7 years old; most of the wireless network access points were more than 11 years old, and some even 17 years old; the automated lending system still relied on 12-year-old barcode technology, and frequently malfunctioned; there were not enough printers; and the study rooms in the library did not have any equipment (e.g. whiteboards) to support collaborative learning or group work among students. Finally, since CTK is fully dependent on the Ministry to make (digital) infrastructure investments and does not have a specific budget line to purchase or upgrade equipment on a more regular basis, or establish contracts for their maintenance, the library had to lease several ICT services (e.g. the information system used for financial and accounting operations is commercially leased), significantly raising the library’s overall operating costs.

3.2 What are the types of ICT equipment and services purchased by institutions?

As noted in section 2.1, the objective of the C2K7 project was to support beneficiary institutions with “the digitalisation of the higher education study process and the digitalisation of processes connected with the pedagogical and administrative management of higher education” [machine translated from Slovenian] (Government of Slovenia, 2022^[2]). Looking in more detail at the operational processes supported by the different types of ICT equipment and services purchased or upgraded by institutions, it is possible to divide the investments into four broad categories:

- 1) **Digital education and academic practice:** Investments aimed at enabling the digitalisation or improvement of pedagogical practice, learning environments, curriculum delivery or assessment (e.g. hardware or software required to support fully online or hybrid teaching and assessment).
- 2) **Student lifecycle and academic administration:** Investments aimed at digitalising the processes through which students enrol, progress through and complete their studies (e.g. admissions and enrolment, course and exam registration, delivery of study certificates, student support).
- 3) **Institutional management and corporate services:** Investments supporting the internal management and corporate functions of the institution (e.g. finance, accounting and HR systems, procurement processes, digital identity systems, document and records management, institutional reporting, staff recruitment, promotion or habilitation procedures).
- 4) **Digital foundations and shared infrastructure:** Investments aimed at strengthening the digital backbone of the institution more generally but not necessarily tied to one specific purpose (e.g. purchasing new or upgrading existing servers and data centres, networks and connectivity, cloud infrastructure, laptops and other types of hardware to support day-to-day operations as well as teaching and learning activities of students and staff).

Table 2 provides an overview of all the equipment and services purchased or upgraded by beneficiary institutions, labelled along the four categories presented above. This shows that most of institutions' efforts (13 investments) went into strengthening their digital infrastructure (e.g. buying new laptops, ethernet switches or upgrading servers and data storage facilities) as a precondition to support secure, efficient and reliable administrative and pedagogical processes. Many investments also targeted core corporate functions such as procurement, human resources (HR) or digital identity systems (8 investments). The other investments comprised more specific software or hardware to support online/hybrid teaching (4 investments) or the development of integrated online environments for study and academic management (3 investments).

Examples of investments in digital foundations and shared infrastructure

As noted, most institutions' efforts and funding went into strengthening the digital backbone required to ensure the reliable, efficient and secure operation of all administrative and teaching activities. For instance, all beneficiary institutions used the RRF funding to purchase shared hardware and personal laptops for teaching and administrative staff to support remote teaching/working, which had become the norm since the COVID-19 pandemic. For example, the **University of Ljubljana** purchased a wide range of shared hardware such as audio systems, video equipment and other supporting equipment such as printers, scanners, 3D printers, sensors or measuring instruments to support teaching and administrative processes. Some of this equipment was installed in smart classrooms to support online/hybrid teaching or lecture capturing, others were made available for use or lending by teaching and students. The university also purchased personal hardware for teaching staff to support them with online/hybrid teaching and remote working (University of Ljubljana, 2025^[22]).

Table 2. Categorisation of ICT equipment and services purchased by beneficiary institutions

Beneficiary institution	Project title	Equipment and services purchased or upgraded	Operational processes supported			
			Digital education	Study management	Corporate management	Digital backbone
University of Ljubljana (UL)	Digital UL Equipment Procurement	1) Digital habilitation procedure			✓	
		2) Unified digital ID system			✓	
		3) Unified study interface (EŠV), ŠTUDL, connected to Integrated Study Environment (IŠO)		✓		
		4) Infrastructure for the Integrated Study Environment (IŠO)		✓		
		5) Shared and specific software products for use in smart classrooms	✓			
		6) Multimedia and other hardware products for use in smart classrooms and personal use	✓			✓
University of Maribor (UM)	RRP ICT Equipment 2022	1) Digital finance and accounting information system			✓	
		2) Digital human resources management system			✓	
		3) Digital information system related to the study process		✓		
		4) Unified ID-management system			✓	
		5) Renewal of computer infrastructure				✓
University of Primorska (UP)	Equipment Purchase for Study and Administrative UP	1) Purchase of ICT equipment (e.g. desktop computers, laptops)				✓
		2) Purchase of ICT and multimedia equipment for Livade 1.0 building	✓			✓
		3) Establishment of the Livade 1.0 communication network and its integration into the UP network				✓
		4) Establishment of a data centre in the Livade 1.0 building				✓
		5) Purchase of servers for the auxiliary/back-up data centre				✓
		6) Purchase of a document management system			✓	
		7) Assistance from external ICT experts (e.g. configuration of hardware and software, IT communication network maintenance, upgrading existing information systems)				✓
		8) Purchase of optical equipment (i.e. optical network and optical fibres)				✓
Faculty of Information Studies (FIŠ) Novo Mesto	Purchase of ICT for Study and Administrative Support	1) Renewal and integration of information systems (i.e. business accounting system, timetable integration and electronic document signing)		✓	✓	
		2) Modernisation of ICT infrastructure (i.e. new system server for administration, replacement of central network				✓

Beneficiary institution	Project title	Equipment and services purchased or upgraded	Operational processes supported			
			Digital education	Study management	Corporate management	Digital backbone
		switches)				
		3) Modernisation of user ICT equipment (new laptops for teaching staff & lecture halls, ADOBE licenses)	✓			✓
Central Technical Library (CTK) at the University of Ljubljana	Purchase of ICT Equipment	1) Personal equipment for staff and one printer				✓
		2) Infrastructure for library (e.g. ethernet switches, smartboard)				✓
		3) New electronic identification system for library material based on RFID technology			✓	
Total	5	25	4	3	8	13

Source: Based on institutions' application documents and final project implementation reports, shared with the OECD team by the Slovenian Ministry.

Several institutions also upgraded their cloud and data storage facilities to increase the capacity of servers for more users to simultaneously, securely and continuously access the institution's different information systems and applications. For example, stakeholders from the **University of Maribor** explained that the technology and systems supporting the operation of its data centre were more than 15 years old, causing major security risks (as discussed in section 4.1, there was a major data breach at the university in 2024) and user experience issues (e.g. servers regularly went down due to insufficient disk and memory capacity and outdated cooling services). For this reason, one of the most important investments made by the University of Maribor consisted of strengthening the data centre's processor, disk and memory capacities as well as replacing the cooling devices, uninterruptible power supply, and access points and network switches (University of Maribor, 2022^[13]). As noted, a fire in the **University of Primorska's** Livade 1.0 building required the institution to direct a major part of its funding to re-equipping the building with the necessary (digital) infrastructure to become operational again. This included creating a communication network for the building and integrating it to the UP central network, establishing a data centre and purchasing servers for the auxiliary/back-up of the data centre (University of Primorska, 2025^[23]). The Faculty of Information Studies (FIŠ) in Novo Mesto also purchased a new system server for administration and replaced central network switches, and at the Central Technical Library (CTK) of the University of Ljubljana, several new ethernet switches were also installed (FIŠ, 2025^[24]).

Examples of investments to improve corporate and administrative systems

Next, many institutions invested in upgrading their various corporate and administrative support systems. The **University of Maribor**, for instance, undertook a major renewal of – as one interviewee called it – “legacy administrative procedures” that were not fully integrated or digitalised yet. To do so, the university hired an external contractor and renewed its financial-accounting system (FRS), the HR/payroll system (KIS), the academic information system (AIPS), timetable systems and the document system. At the **University of Ljubljana**, the habilitation procedure for staff elections and the award of academic and research titles was digitalised, thereby making the process more transparent, traceable and efficient.

Another area in which many institutions invested was the development of new digital identity systems. The University of Ljubljana's **Central Technical University Library (CTK)**, for instance, created a new electronic identification system for library material based on radio-frequency identification (RFID) technology. RFID technology uses radio waves to track, identify and manage objects or people and is increasingly used in modern libraries as an alternative to barcode technology. It allows self-service

checkout and returns of books and materials, faster inventory and sorting of materials, tracking lost or misplaced materials, as well as theft prevention through security gates. The **Universities of Maribor and Ljubljana** also invested in the development of a single digital identity system, enabling users to use only one username and password to log into different institutional services and faculties.

Examples of digital equipment to support education and academic practice

All institutions also invested in the purchase and upgrading of hardware and didactic software packages to support teaching and learning, but the level of resources invested in this type of equipment varies from institution to institution. At the **University of Ljubljana**, strengthening the offer and quality of fully online and hybrid study programmes has been a priority of the institution for several years. For this reason, as noted in section 3.1, the university invested in a wide range of personal hardware for teaching staff and shared hardware to equip smart classrooms for online or hybrid teaching. The University of Ljubljana's final implementation report notes that 357 procurement procedures for the purchase of hardware were completed. The university also purchased a wide range of shared and specific didactic software products. Shared software was defined as products requested by three or more faculties. In total, the university purchased 10 shared software products and licenses (examples include: BookWidgets, Kahoot! Enterprise, 3D Vista, Mentimeter and ADOBE Creative Cloud). Specific software was defined as products in which fewer than three (usually one) faculty showed interest. In total, 12 specific software products and licenses were purchased by the university (examples include Easy VET for veterinary medicine, or DentalCad and PartialCad for dentistry studies) (University of Ljubljana, 2025^[20]).

At the **Faculty of Information Studies (FIŠ) in Novo Mesto**, around half of all available funding (EUR 56 157.80) was reserved for lecture-room laptops (EUR 10 000, 10 units) and laptops for teaching staff (EUR 15 000, 10 units). In its application document, FIŠ referred to these as “essential teaching equipment” for the institution (FIŠ, 2022^[18]). As noted, at the **University of Maribor** resources were primarily reserved for the purchase of the required hardware (e.g. servers, switches, cooling devices) to upgrade the institution's data centre. However, a small volume of resources (around EUR 60 000) was used to pay for the renewal of license costs associated with various (didactic) software products. At the **University of Primorska**, too, the majority of resources went into renewing the Livade 1.0 building following the fire in 2017. As part of this renovation, a small amount of money (around EUR 50 000) was also used to purchase a number of hardware and other multimedia equipment to improve the quality of teaching and learning and support online learning (e.g. monitors, computers, webcams, headsets, projectors, multimedia equipment).

Examples of investments to support integrated study and academic administration

Finally, all HEIs also used the RRF funding to make improvements to the online information systems used by students and teaching staff to enrol for courses, exams and access online materials and applications. At the **University of Ljubljana**, this consisted of consolidating the institution's fragmented digital landscape, with all 26 faculties and academies operating their own Moodle installations, with individual infrastructure and custom adjustments. Through the C2K7 project, a single and integrated student information system (SIS) was created, ensuring consistent user experience, branding and opportunities for interdisciplinary collaboration across faculties (more on interdisciplinary collaboration in section 4.1 below). At the **University of Primorska**, too, the IT systems of all faculties' student information systems were connected to allow staff and students to register for courses, exams and see grades in one system. The **Faculty of Information Studies (FIŠ) in Novo Mesto** created a connection between the timetable planning tool and its online student information system.

4. Effects, impact and challenges of ICT project implementation

This section starts by assessing the main benefits reported by beneficiary institutions of the ICT project on the day-to-day operation of their teaching and administrative processes. It then examines the main challenges encountered by institutions when implementing the ICT project.

4.1 What have been the main effects and impact of the ICT project for institutions?

As noted in section 3.1, the single most important benefit of the RRF funding is that it has supported beneficiary institutions to upgrade or purchase new ICT equipment and renew or expand software licenses, either permitting new investments that would otherwise have gone unfunded or accelerating investments already started. In interviews with the OECD team, as well as in their final project implementation reports, beneficiary institutions reported several benefits of the ICT project (and the processes they had to go through to purchase these).

Enhanced operational efficiency and cost savings

A first major benefit reported by institutions is improved operational efficiency and cost savings. This impact was reported by all five beneficiary institutions. For example, in its final project implementation report, the **University of Primorska** says that the investment project “significantly improved UP’s operational efficiency, transparency and service quality” [machine translated from Slovenian] (University of Primorska, 2025^[21]). Likewise, the **Faculty of Information Studies (FIŠ)** in Novo Mesto notes that the ICT investments supported the faster preparation of materials by teaching and administrative staff, improved coordination and communication between departments, and relieved teaching staff of routine tasks. This freed up more time for staff to focus on teaching and actively supporting students (FIŠ, 2025^[22]).

The **Central Technical University (CTK)** of the University of Ljubljana notes a reduction in the library’s overall operating costs as a result of developing institutionally based financing and accounting systems. Prior to this, these systems were commercially leased, significantly raising the library’s overall operating costs. In its final implementation report, CTK also states that the project “enabled more sustainable use of both material and human resources” [machine translated from Slovenian] (CTK, 2025^[23]). The new electronic identification system for library material also significantly reduced staff time in searching shelves manually for lost or misplaced books. The **University of Maribor**, finally, estimates a “5% share to reducing labour costs in administrative services through optimisation of operations, the introduction of paperless operations, the reduction of errors, and the ability to prepare high-quality reports and built-in controls” [machine translated from Slovenian] (University of Maribor, 2025^[21]).

Improved security and resilience of IT systems

A second and related benefit is improved security and resilience of IT systems. One interviewee said that the ICT project supported strengthening the “underlying infrastructure to permit things to be done smoothly, efficiently and securely.” As noted in section 3.1, the **University of Maribor** used the RRF funding to make a wide range of modernisations to its 15-year-old data centre, including to improve its security (e.g. new telecommunications equipment, firewalls and long-term optical-fibre connectivity). Nevertheless, on 23 October 2024 a major ransomware attack still took place. This disrupted the internet connectivity, digital identities, email systems and e-services for the more than 10 000 students and nearly 2 000 staff at the university. In interviews with the OECD team, stakeholders explained that without the RRF funding, the university would not have been able to respond as quickly and efficiently to recuperating all the lost data and put in place a more resilient system for the future. The incident also raised awareness among all staff and students of the importance of adopting safer digital identity and data sharing protocols.

In their final project implementation reports, **FIŠ** and the **University of Primorska** also report that the ICT investments delivered “major improvements in information security and system resilience” [machine translated from Slovenian] (University of Primorska, 2025^[21]) as well as “greater security and traceability of processes: digital signing and electronic archiving of documents in the 4PM programme database ensure greater traceability, integrity and security of business processes” [machine translated from Slovenian] (FIŠ, 2025^[22]).

Increased user satisfaction and trust in the institution's operations

Safer and more efficient digital education and business processes were also reported to increase overall user satisfaction and trust in the institution. In relation to this point, the FIŠ' final project implementation report states the following:

A digitally supported organisation that uses modern tools operates transparently and efficiently, strengthens its reputation among students, employees and external partners. In the long term, this contributes to the greater attractiveness of the faculty in the academic and business environment [machine translated from Slovenian] (FIŠ, 2025^[22]).

The University of Ljubljana, the University of Primorska, the University of Maribor and CTK report similar improvements in overall user satisfaction with their institutions' services. For both students and teaching staff, more stable and reliable operating systems, connectivity and integrated information platforms were, among other things, reported to support easier access to research literature, e-learning software and administrative documentation.

Transformation of pedagogical processes

As noted in section 3.2, in addition to strengthening their basic digital infrastructure (e.g. strengthening connectivity or cloud storage capacity), all four HEIs purchased ICT equipment specifically aimed at supporting or improving pedagogical practice, learning environments, curriculum delivery or assessment (e.g. purchase of multimedia equipment for Livade 1.0 building at the **University of Primorska**, or the purchase of hardware/software for online/hybrid delivery at the **University of Ljubljana**). All institutions also made improvements to the online information systems used by students to enrol for courses and exams, receive study certificates, communicate with teaching staff and submit assignments or access learning materials (e.g. creation of an integrated student information system at the **University of Ljubljana**, or the timetable integration in the **FIŠ**' student information system).

All higher education stakeholders interviewed by the OECD team referred to these investments as key “enablers” or “facilitators” to transform pedagogical processes. Some of the main improvements to teaching and learning processes reported by HEIs are the following:

- **Flexible learning:** First, all HEIs reported that the ICT equipment has been crucial to (continue) supporting flexible ways of teaching, learning and working for both students and teaching staff. For example, the development of smart classrooms supports hybrid course delivery and self-paced learning (e.g. students can re-watch recordings or lectures in their own time). The digitalisation of certain (more routine) teaching or administrative tasks for teaching staff also means that they can dedicate more time to course planning, teaching and offering personal guidance and support to students.
- **Lifelong learning:** Some institutions also reported that they see the development of online learning spaces and materials as an opportunity to strengthen the participation of adult learners in higher education, including the development of micro-credentials. For these learners, who often have to combine studying with work and caring responsibilities, greater flexibility in how and when they engage with course material can be crucial to support their participation in higher education.

- **Interdisciplinarity:** The creation of a single study interface accessible through a single student ID was mentioned by several institutions as a key enabler for interdisciplinary learning and cross-departmental collaboration. For instance, in interviews with the OECD team stakeholders from both the University of Ljubljana and Primorska explained that, prior to the ICT project, if students wanted to combine courses from different faculties or departments, they had to access different online study environments and create different accounts. This created a lot of practical and administrative barriers for both students, administrative and teaching staff (e.g. registering for classes, timetabling, or manually having to transfer or input grades). This hindered the development of interdisciplinary learning as well as collaboration among teaching staff from different faculties to create more structured interdisciplinary study programmes.
- **Student tracking:** Finally, the creation of a single student information system offers huge potential for student tracking and data analysis. Having all data on student enrolment, progression and completion in one place can help faculty and institutional management to identify those students at risk of dropping out (and offer them targeted support) as well as compare key performance metrics (such as student satisfaction, time-to-completion or drop-out rates) across faculties, courses and teaching staff. Such information can be powerful to inform course improvements.

Improved digital competencies of teaching and administrative staff

Finally, while the project was not directly meant to strengthen students nor teachers' digital competencies, the provision of new and up to date ICT equipment did create the enabling environment for this to happen. One interviewee described the situation as follows: "The project itself was not specifically designed to build digital competencies, but it created the necessary conditions to build those competencies". In its final project implementation report, the FIŠ also reports that, through the introduction of new digital tools and processes, "employees' digital literacy increased. Users became acquainted with the use of electronic signatures, digital workflows and modern tools for document design, which contributes to the long-term digital maturity of the organisation" [machine translated from Slovenian] (FIŠ, 2025^[22]).

Stakeholders from the **University of Ljubljana** explained that the new ICT equipment enabled them to start offering training to teaching staff, notably through the ULTRA and "Multipliers" projects discussed in section 3.2. In interviews with the OECD team, stakeholders mentioned that the university trained more than 2 000 teachers on how to use different types of digital equipment and applications in their e-classrooms, and that the project "really created a movement among teaching staff".

4.2 What have been the main implementation challenges faced by institutions?

As noted in section 2.1, to purchase the ICT equipment, institutions themselves were responsible for the preparation of technical specifications, the implementation of public procurement processes, and the provision of user support to effectively use the newly purchased or upgraded ICT systems. While carrying out these tasks constituted an important learning curve, it also entailed several challenges.

Complex and lengthy public procurement processes

The single most important challenge reported by institutions relates to the management of public procurement processes. One interviewee said that "this was very complex and time-consuming [... and] something they would not like to be part of again". Below are some of the main challenges shared by HEIs:

- **Lengthy preparation and implementation:** In some institutions, public procurement procedures required six months or more to prepare, followed by a further six months to complete. These extended timelines meant that some equipment arrived late in the project, reducing the time available for installation, testing and supporting the effective use of equipment by teaching and administrative staff.

- **Complex and resource-intensive technical specifications:** Institutions had to prepare detailed technical and functional specifications for hundreds, and in some cases thousands, of products. The preparation of these technical specifications often required extensive research, consultation with faculties and translation into Slovenian. Documentation needed to be precise enough to secure the required equipment while remaining compliant, competitive and open to different suppliers.
- **Budget uncertainty and rapid price increases:** Initial cost estimates sometimes proved substantially lower than the bids received. Inflation, supply-chain disruption, the COVID-19 pandemic and the war in Ukraine contributed to sharply rising prices and longer delivery times. In some cases, institutions committed significant additional resources but were still unable to proceed because bids exceeded the available budget. This required funds to be reallocated and project activities to be redesigned around alternative solutions.
- **Limited supplier availability and unsuccessful procedures:** Procurement procedures sometimes attracted no bidders, particularly where delivery schedules were short or requirements were highly specialised. In other cases, selected suppliers failed to provide the required evidence before contract signature. Institutions consequently had to relaunch procedures, seek permission to transfer funding between financial years or identify alternative purchases, all of which increased implementation risks and delays.

Limited internal expertise and capacity to support IT maintenance and teaching staff

A related challenge is that not all institutions – and, within institutions, individual faculties – had the required technical expertise to efficiently prepare or provide input for the above-mentioned technical specifications (e.g. identifying what type of ICT equipment they needed exactly). Some institutions hired the services of an external expert company for this. HEIs also reported that, once the equipment had been bought, they had limited staff available to install, maintain and support the effective use of ICT equipment by teaching and administrative staff.

In consultations with the OECD team, teaching staff mentioned that while specific equipment had been bought to support hybrid teaching, this equipment was often not correctly adjusted or used by teaching staff, causing teaching staff to lose time at the start of lessons to install this properly, or having to call IT support (with limited availability) to help them with this. Institutions also reported a need for the creation of (online) booking systems for equipment, and a need to monitor how frequently equipment is used, and users' experience with different tools and technologies.

Digital competence development and standardisation of digital practices

A third challenge relates to the digital competencies of teaching staff. While, as noted in section 4.1, the ICT equipment was seen as an enabler or facilitator for the transformation of pedagogical processes, in practice only few faculties and teaching staff have the motivation and competencies to use the full potential of the ICT equipment and software. The limited availability of pedagogical support staff to offer guidance and training to instructors was also cited as a major challenge for this.

In consultations with the OECD team, several stakeholders mentioned that, despite the availability of new ICT equipment and events such as the COVID-19 pandemic or the cybersecurity incident at the University of Maribor, some faculties and teaching staff continue to use outdated technologies or teaching practices and refuse to get on board with the digital transformation. Students, for example, said that while one teacher consistently used Moodle to deliver courses and upload course materials, others would still be using other tools such as MS Teams. Several stakeholders – students in particular – felt that, when it comes to using certain digital technologies or platforms, institutions should be given less freedom, and HEIs should seek to strive for greater harmonisation, not only to improve teaching quality but also the overall security and efficiency of institutional processes.

5. Supporting the future digital transformation of Slovenian higher education

In consultations with the OECD team, institutions shared how they plan to ensure the sustainability of their ICT equipment post-2025. They also shared their views on how they believe public policy might support the further digital transformation of Slovenian higher education, and the potential role of ARNES, as a system-level actor, in this process. Two main areas of focus emerged from these discussions: 1) the importance of institution and system-level support for the maintenance and upgrading of *ICT equipment*; and 2) institution and system-level support for the development of staff and students' *digital competencies*.

5.1 How can the maintenance and upgrading of ICT equipment be supported?

As noted, the ICT project provided all beneficiary institutions with a major (and much-needed) upfront investment to support the renewal of their existing digital infrastructure, and to purchase new equipment and software. In consultations with the OECD team, several stakeholders expressed concerns about the availability of sufficient funding post-2025, not only to maintain and upgrade the digital infrastructure on a regular basis, but also to hire additional technical support staff. Securing sufficient funding was cited by one interviewee as “the major challenge for the future”. In relation to the maintenance and upgrading of digital infrastructure, the main expected future costs cited by institutions include replacing outdated hardware (typically needed every 5-6 years, depending on the technology in question), renewing licenses for different applications supporting various teaching and administrative processes, and paying IT support staff and external services. In relation to IT support staff, stakeholders expressed challenges in hiring and retaining such staff. Many institutions face challenges to compete with the wages and working conditions offered by private sector companies.

Efforts of institutions to ensure the sustainability of ICT equipment

Given the uncertainty around future funding to support further ICT investments, several institutions said that they were planning to monitor the use and user satisfaction of students and staff with different ICT tools and software. Based on this, they would then be able to identify which software licenses and equipment to renew or discontinue and strive for greater harmonisation and resource efficiencies across the organisation.

System-level support for the maintenance and upgrading of ICT equipment

At the same time, institutions were very clear that striving for greater internal harmonisation, rationalisation and resource efficiencies alone would not be sufficient to maintain their digital infrastructure. All institutions expressed a clear need for continued financial support from the government to invest in ICT equipment. In this context, higher education stakeholders were hopeful that the “investment pillar” in the new programme of institutional performance agreements would offer a dedicated space for this (see section 2.2).

In addition to government funding, some institutions believed that ARNES might play a role in maintaining and supporting the development of some elements of Slovenia's digital higher education infrastructure. Not all institutions, however, immediately recognised the potential value of ARNES in this space. There are three main reasons for this: a) several institutions greatly appreciated the flexibility they had to manage the ICT investments by themselves, in line with their institutional autonomy; b) as noted, ARNES' role is currently very limited in the higher education sector; and c) institutions have negative experiences with some centralised IT support services led by the government (e.g. the development of a national student ID or nationally negotiated Microsoft licenses, which are slow to be implemented).

Nevertheless, in consultation with the OECD team, some pointers were mentioned on areas in which ARNES support could strengthen continuity, reduce costs and limit dependence on private EdTech providers:

- Mapping the software, hardware and computer infrastructure used across Slovenian higher education institutions;
- Providing centralised maintenance and remote management of digital and multimedia equipment;
- Monitoring IP-based lecture-room systems to reduce the need for on-site technical support;
- Supporting shared software-licence management and evidence-based decisions on renewals;
- Facilitating joint procurement and negotiations with technology providers, potentially in cooperation with the government; and
- Helping institutions develop sustainable alternatives to proprietary platforms, including solutions related to artificial intelligence.

5.2 How can staff and students be supported to develop their digital competencies?

To ensure the ICT equipment achieves a genuine transformation of teaching and administrative processes across institutions, the development of guidance, training and targeted support for staff and students in relation to effectively using the equipment was cited as a major priority for the future.

Efforts of institutions to support digital competence development

As noted in section 3.1, in some HEIs, dedicated centres for teaching and learning have been established at some institutions. For example, at the University of Ljubljana, the Digital UL Centre has been supporting students and teaching staff to effectively use ICT for educational purposes since 2020 (University of Ljubljana, n.d.^[27]).

System-level support for digital competence development

However, since not all institutions in Slovenia have the capacity to meet the ICT training and support needs, it was felt that some form of system-level support for digital competence development might be needed. In the past, Slovenia has already funded several national initiatives to support teaching and learning enhancement in higher education, but none of these included a specific focus on digital teaching and learning. Examples include Innovup, a national programme launched in 2018 to promote innovative teaching and learning methods (OECD, 2022^[28]). The Knowledge Platform offers another promising approach in providing a permanent framework for academic staff to exchange on EU initiatives on education, research, and innovation (Government of Slovenia, 2024^[29]).

Building on these initiatives, Slovenia could consider strengthening the role of ARNES, or another, capable and trusted system-level actor, in offering targeted support to HEIs to strengthen their digital competencies. For example, ARNES could:

- Provide shared training in areas such as artificial intelligence, high-performance computing and advanced digital services;
- Act as a connector between different levels and areas of expertise across universities (e.g. promoting courses or guidance material developed by individual institutions, such as Digital UL at the University of Ljubljana);
- Facilitate secondments and staff exchanges between ARNES and university computing or digital education teams;
- Develop communities of practice through initiatives such as the ARNES Network Conference and Network of Knowledge.
- Explore incentives or formal recognition for university staff who participate in digital competence training.

6. Conclusions

This report has examined the relevance, effectiveness, efficiency, impact and sustainability of five ICT projects implemented by Slovenia's four public higher education institutions (HEIs), and the University of Ljubljana's Central Technical Library (CTK), as part of the project "C2K7 – *Digital transformation of the public sector and public administration*". The C2K7 project was implemented by the Slovenian Ministry of Education, Science and Youth as part of Slovenia's Recovery and Resilience Plan (RRP) and benefitted from an investment of almost EUR 12.5 million.

The evaluation was carried out by the OECD team between April and August 2026 and included a mix of desk research, online stakeholder interviews and a fact-finding mission to Slovenia on 6-7 July 2026.

The main findings from the evaluation are the following:

1. **Relevance:** The investments responded to clearly identified institutional needs and were aligned with both institutional priorities and Slovenia's national objectives for the digital transformation of higher education. All institutions had a very clear vision on the types of ICT equipment that needed upgrading or replacing, and the RRF funding gave them the means to make investments that would otherwise have gone unfunded or accelerated investments already started.
2. **Effectiveness:** The investments achieved their principal objectives of renewing and upgrading ICT infrastructure and digital systems supporting administrative, teaching and learning processes. Beneficiary institutions invested in a mix of ICT equipment to support digital and academic practice (e.g. multimedia equipment for smart classrooms or licenses for pedagogical applications), student lifecycle and administration (e.g. student information systems), institutional management and corporate services (e.g. human resource and financial management systems) and overall digital foundations and shared infrastructure (e.g. network connectivity, cloud and data storage capacity).
3. **Impact:** These improvements generated a range of reported benefits for beneficiary institutions and their users, including enhanced operational efficiency, cost-savings, and improved security and resilience of IT systems. These, in turn, increased user satisfaction and opened possibilities to enhance the digital competencies of teaching and administrative staff and transform teaching and learning processes (e.g. flexible learning, interdisciplinarity, lifelong learning, and student tracking). However, the full impact of the investments will become clearer over time as the new infrastructure and systems are more widely adopted and embedded in institutional practices.
4. **Efficiency:** The Ministry designed and administered the project efficiently. The call for proposals was aligned with the needs of beneficiary institutions which, along with the flexibility they received to re-allocate funds if needed, which allowed them to achieve the objectives. Implementation was nevertheless complicated by complex public procurement processes and limited availability of suitable suppliers and contractors. Despite these challenges, procurement processes helped ensure that products and services were purchased transparently and at market rates. The evaluation found no evidence that the investments failed to provide good value for money.
5. **Sustainability:** Sustaining the benefits of the investments will require careful monitoring at institution and system-level, and continued national funding, particularly to keep ICT infrastructure and systems secure, functional and up to date. Slovenia's new system of institutional performance agreements should provide a framework for addressing these needs. More broadly, there is a case for reviewing how the responsibility for digital investment and digital competence development are allocated and supported across Slovenia's higher education system, given the nation's relatively small size and the capacity constraints of individual HEIs. In this context, ARNES could assume a greater system-level role and may develop a strategy for this – in consultation with HEIs and the government.

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